EXISTING CONDITIONS & DESIGN RECOMMENDATIONS

ROSWELL
NEW MEXICO

FINAL REPORT - JANUARY 2018

MRWM
LANDSCAPE ARCHITECTS

TORRE DESIGN
CONSORTIUM LTD.

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A. OVERVIEW

What to do with the Spring River Zoo? That question has been on the minds of many people recently, perhaps more now than at any other time since the Zoo's inception. Many site visits, meetings and conversations have recently occurred to try and provide an answer. A solution is not simple. This complexity may be a result of the conflicting views and perceptions of the Zoo itself. The facility manages to be both loved by the community, yet neglected in terms of investment. It is lovingly maintained and also falling apart. Staff is proud of the work they do, but admits that the facility is poorly perceived by the majority of visitors. In some aspects it is a real zoo, in some aspects an animal rescue, and in others a roadside attraction.

While the facility faces many challenges, the opportunities for improvement are just as numerous. The Zoo is nestled amongst mature trees on the bank of the Spring River. The setting is beautiful, has rolling topography, and water in the form of the river and the fishing pond. All of these aspects are a luxury in the often barren plains surrounding Roswell. The facility has the support of the community and has a dedicated staff. There is ample room to grow and develop.

The current condition of the Zoo cannot remain. Demands from the public, PETA and the USDA require the Zoo to change or shut down. So the real question that must be answered is what does the "new" Spring River Zoo want to be? A first class, modern facility? A better version of the current Zoo? Something in between? A vision must be agreed upon by the community, administration and staff. Future improvements must stay true to this vision so that the Zoo transforms from a random collection of exhibits and features into a cohesive destination that all parties can be proud of.

This report provides an overview of the 36 acre facility and makes several recommendations for improvement. It provides a bold vision of a new direction for the Zoo, but also identifies interim improvements that can be achieved with existing resources. The goal of this effort is to provide ideas and information to the City of Roswell so that they can begin to answer the questions surrounding the future of the Spring River Park and Zoo.

B. EXISTING CONDITIONS

1. OVERVIEW OF PARK CONDITIONS

The park site consists of approximately 5.6 acres of open turf that gently slopes from the north parking lot to the Spring River channel. The north asphalt parking lot is approximately 1.1 acres. There is an additional 12.9 acres of land south of the Spring River channel that includes a children's fishing pond. For the purposes of this report, the area south of the river is not considered part of the daily used park. North of the river, the park contains mature trees, picnic tables and play equipment. Overall the park appears well maintained with no visible litter and regular mowing and trimming being performed. There is no evidence of erosion or drainage problems. While day to day maintenance is high, annual maintenance and long term investment in the park has been less of a priority. The following observations were made during several visits to the park during the months of September through November 2017:

a) PARKING AREAS

- The north parking area is most used by Zoo visitors and the amount of parking seems adequate for the current level of visitation.
- The turf area to the east of the parking lot is the most obvious opportunity to expand parking if warranted by an increase in zoo visitation.
- The asphalt, while worn, is in adequate condition.
- There are no islands or trees in the parking lot. Shade is limited to the southern most row of parking where cars can benefit from the trees in the existing park.
- Accessible parking spaces exist on the east side of the lot and in the southwest corner of the lot near the zoo.
- Another 1/2 acre parking area exists on the south side of the Zoo and is accessed from Atkinson Avenue. While this lot provides convenient access to those using the Spring River Channel exercise path and fishing pond, the location creates a back entrance to the Zoo. The location of this lot would be problematic if the City wishes to control access to the Zoo through a main entrance.

Parking lot is too bright and hot during the summer months. Entry to lot is underwhelming.

PARKING AREAS RECOMMENDATIONS:

- Consider whether re-organizing the existing north parking lot will increase the number of available spaces.
- Avoid building permanent structures or planting too many trees in the park area east of the existing north parking lot where future expansion of the parking lot may be warranted. Consider relocation of the picnic activities in this area as equipment becomes due for replacement.
- Consider creating planting islands in the parking lot to accommodate shade trees and improve the "first impression" for visitors. Modify entry landscape to include signage and a gateway.
- Perform a head count for the facility to identify the required amount of accessible parking spaces for the facility. Add new accessible spots as required.
- If the City begins to control access to the Zoo, the south parking lot should include signage directing zoo visitors to the north lot. Long term, the south lot may transform into a maintenance area or expansion area for the Zoo.

b) ACCESSIBILITY

Compliance with current ADA requirements is generally low. While efforts have been made to make the facility accessible, the methods are either outdated or the accessible path does not lead to an accessible feature. The good news is that the abundant space and gentle slopes found throughout the park should make ADA upgrades straightforward. Specific examples of ADA access issues are as follows:

- Several accessible parking spaces are provided on the east side of the north parking lot, next to several shade structures with picnic tables. There is not an accessible sidewalk between the parking area and the shade structures, inadequate space to maneuver is provided around the structures and to the tables, and the tables are not designed to accommodate a wheelchair user.
- An accessible sidewalk is provided from the north parking lot to one of the play structures, however the accessible parking spots are located some distance away. The play structure is designed to accommodate a wheelchair user but the structure no longer meets the requirements for ramp widths or number of accessible play elements.
- The overall number of accessible parking spots appears inadequate for the number of potential visitors.
- The site furnishings (benches, tables, trash cans) are generally not located along an accessible route.

There is no accessible path from the ADA parking spaces to the adjacent picnic area feature.

ACCESSIBILITY RECOMMENDATIONS

- Construct a new, accessible group picnic area on a concrete plaza with accessible tables and an accessible route between the plaza and the parking lot. Relocate this feature so it does not conflict with future parking expansion.
- When replacing playground equipment, verify that new equipment meets the current standards for accessible access and number of play opportunities. Ensure an accessible route is provided from the parking area to the playground.
- Review and provide the appropriate number of accessible parking spaces.
- Relocate some of the existing benches so that they are immediately adjacent to existing paths and can be used without crossing the turf.

A generous number of site furnishings can be found in the park, however none can be reached by an accessible path.

c) SITE FURNISHINGS

- The entire site is surrounded by a 6' chainlink fence. With the exception of barriers associated with the Zoo, there are no interior fences in the park area.
- There are six shade structures located in a group just east of the north parking lot. While the structures are several years old and have some rust, they appear sound and usable.
- Benches, tables and trash receptacles are quite numerous and are generally in good condition. The equipment ranges from wood, to galvanized to vinyl coated and are scattered throughout the site. Most furnishings are located in turf, making them difficult to mow around and at risk of damage from irrigation spray and trimming operations. Few furnishings can be accessed by an ADA accessible path.
- A number of light poles can be found throughout the park, some of which are missing their wiring access covers which would allow the public to come in contact with the wiring. The lights are not located consistently throughout the facility and the poles are quite rusted.

Choose one style of site furnishing. Avoid wood and vinyl coated furnishings, they do not last in our climate.

SITE FURNISHING RECOMMENDATIONS:

- When perimeter fencing warrants replacement, consider a welded wire mesh or other decorative fencing for areas where the public is in close proximity. For example, the fencing between the County Road and the north parking lot where the main entrance to the Zoo is located. See the materials palette section of this report for an example. Also consider fencing the maintenance and storage areas located on the east side of the park just north and south of the Spring River Channel.
- Consolidate multiple shade structures into one large structure that can be easily made accessible and will accommodate group activities. Smaller, single family structures can be scattered throughout the park. Powder coated steel structures with a metal roof are the longest lived and can be found in a variety of colors.
- Choose a single manufacturer and style for benches, trash cans and tables. All three should be from a single "family" of products that relate to one another in style and color. Avoid wood and vinyl coating, powder coated steel is longer lasting. Place site furnishings on concrete pads that can be trimmed around without damaging the furnishings. Tables located along an accessible route should accommodate a wheelchair user. See the materials palette section of the report for examples.
- Lighting recommendations are dependent on future use of the site. Currently the facility is closed at night with access limited to a few special events throughout the year. Nighttime events should be reviewed and at a minimum paths and gathering areas should have a level of light adequate to allow for safe walking and personal security.

Site lighting is past due replacement.

A concrete pad protects furnishings from turf maintenance equipment. If located next to a path, the pad would make the bench accessible.

d) PLANTINGS

The plantings in the public park area of the facility consist of mature trees. There are no shrubs or annual plantings. There is a variety of tree species in the park, the predominate species being Siberian Elms and Oaks. The trees are primarily healthy, however, almost all are mature and several are nearing the end of their natural lifespan. There are a number of stumps present where mature trees have been removed, including one with an adjacent memorial plaque.

PLANTING RECOMMENDATIONS:

Begin a tree planting program by installing +/- thirty trees a year over the next ten years. Trees should be at least 2" caliper to create an immediate impact and withstand pressures of being in a public park. Plant no fewer than ten species each year and plant at least 25% evergreens.

Mature trees are beginning to decline. This tree will begin to drop large limbs and will require removal in the next few years.

The park has a beautiful tree canopy creating dense shade. Plant the next generation of trees now, so that they are established when the existing mature trees decline.

e) IRRIGATION

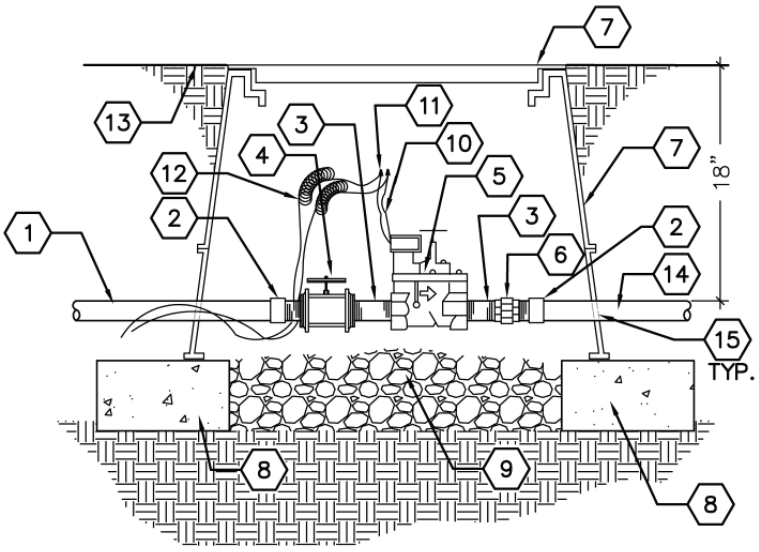
- Overall, the irrigation coverage appears adequate with few to no dry spots visible on aerial imagery.
- Anecdotal information from staff indicates that the system is quite old and documentation does not exist that maps the system in its entirety.
- Pressures are reported to be low. Rather than installing a booster pump, staff is under sizing pipe to increase throw.
- No backflow preventor exists as the system is well based, however potable water is used as a back-up and is reported to not include a back-flow prevention device.
- Valve boxes are undersized and it is not feasible to repair valves without removing the box itself.

IRRIGATION RECOMMENDATIONS:

- Audit the existing system and create a map of the existing system.
- Create an irrigation master plan taking in to account the available flow and pressure from both the well and the potable water system. The design should take into account the existing and future irrigation needs of the facility.
- Install a backflow preventor on the potable supply and install booster pumps on both systems as required to produce adequate pressure.
- Create a list of standard equipment and installation details for the irrigation system and begin implementing the standards on both new construction and repairs to the existing system. Standards should be applied across the City's park system.

This existing valve is buried in debris and impossible to access. To replace or repair the valve, the entire valve box would require removal. It is very likely that no mechanism exists to remove the valve without shutting down the entire irrigation system.

See the drawing on following page for a modern valve installation.



⬡ KEYED NOTES

1. NON–CONSTANT PRESSURE IRRIGATION MAINLINE
2. SCH. 40 PVC MALE ADAPTER
3. SCH. 80 PVC NIPPLE
4. SCH. 80 PVC TRUE UNION BALL VALVE
5. AUTOMATIC VALVE – SEE IRRIGATION LEGEND
6. SCH. 80 PVC UNION
7. 17"X30" VALVE BOX WITH T–STYLE BOLT DOWN COVER AND EXTENSIONS AS REQUIRED – SEE IRRIGATION LEGEND
8. 8"x 8"x 16" SOLID CMU BLOCK, FOUR PER VALVE BOX
9. 6" DEPTH OF 1" DIAMETER WASHED GRAVEL, MINIMUM 2" CLEARANCE FROM BOTTOM OF VALVE
10. AUTOMATIC VALVE CONTROL WIRE
11. WATERPROOF WIRE CONNECTOR
12. 36" LENGTH WIRE EXPANSION LOOPS
13. FINISH GRADE
14. IRRIGATION LATERAL PIPE
15. DRILLED HOLE THROUGH VALVE BOX EXTENSION SHALL BE 1/2" SIZE LARGER THAN PIPE

A4 AUTOMATIC IRRIGATION VALVE ASSEMBLY

SCALE: N.T.S.

This valve installation features an oversized box, allowing maintenance personnel to maneuver and make repairs without removing the entire box. An isolation valve is located upstream of the valve, allowing the irrigation zone to be shut off manually without disrupting the entire system. The valve is raised above the soil, making maintenance easier and keeping the valve away from debris.

f) PLAY EQUIPMENT

The play equipment represents several eras of play development ranging from the 1960's to the 2000's. The equipment is in fair to worn condition. The play equipment is installed over a variety of safety surfaces, all of which are in need of replacement or replenishing. Observations for specific play areas are as follows:

- Rocker: This is a square piece of rocking equipment over engineered wood fiber with a plastic border. Equipment is in fair condition. Plastic border is in fair condition. Engineered would fiber has deteriorated and settled, exposing the support structure of the equipment and creating a safety hazard.
- ADA Structure: This is a large composite structure with numerous slides over poured-in-place safety surfacing. Equipment is in fair condition. Poured-in-place surfacing remains intact, however, this surfacing type commonly loses its impact attenuation over time, resulting in a hard surface that does not protect users. The width of the access ramps does not meet current codes and the accessible path only allows a user to access the raised portion of the structure, not the larger play area at the bottom of the slides.
- Fish: The fish is a newer piece of equipment installed over engineered wood fiber with an incomplete lumber border. The elevation of the equipment in relationship to the surrounding grade does not allow for the engineered wood fiber to be maintained at the proper depth. The footing and support structure of the equipment is exposed creating a safety hazard.
- Rocket: The rocket slide is a classic piece of Americana, whose design was influenced by both the cold war and the era of space exploration. The equipment is in surprisingly good condition, but does have some rust. The ladder rungs are worn from decades of use and have sharp edges. A modern plastic border and engineered wood fiber has been installed underneath the structure, however, the concrete footings are at the same elevation as the engineered wood fiber creating a safety hazard. Unfortunately, this piece of equipment violates a number of modern safety requirements and represents a significant liability for the City and a safety issue for the public.
- Swings: The swings have two bays, a standard strap seat and a toddler bucket seat installed over engineered wood fiber with a plastic border. The condition of the equipment is worn but usable. Plastic border is in fair condition. Engineered wood fiber has deteriorated and settled, exposing the concrete footings and creating a safety hazard.

Note the exposed concrete footing. Engineered wood fiber should reach the top of the plastic border.

No border exists around the fish to maintain the proper height of the safety surfacing. Ramp to accessible play structure does not provide access to lower portion of the playground. While a wheelchair can access the upper deck equipment, there is little for the user to do once they are there.

PLAY EQUIPMENT RECOMMENDATIONS:

- A playground safety audit should be performed annually by a CPSI certified auditor, for all playgrounds owned and operated by the City. Safety standards are updated on a regular basis and following the recommendations of the audit can protect the City from serious liability. It is also possible for a City of Roswell employee to become certified and to perform audits internally. The audit will make recommendations for removal, repair or modification to equipment as well as verify safety zones and surfacing requirements. It is important to note that some safety hazards are subtle and the observations included in this report do not constitute an official audit.
- With the audit, a G-max test should be performed on the poured-in-place surfacing to determine if the surfacing is still providing protection to users.
- All engineered wood fiber should be replenished and continually maintained.
- A complete border should be installed around the fish at the proper elevation to contain the engineered wood fiber safety surfacing.
- The audit will almost certainly call for the immediate removal of the rocket slide. These classic structures are loved by the community and their removal is often controversial. The City may elect to leave the structure and install a fence or other barrier around the equipment to prevent use.

2. OVERVIEW OF ZOO CONDITIONS

The Zoo site consists of approximately 16 acres of exhibits, maintenance areas, pedestrian areas and open spaces. Approximately 4.5 of these acres are maintenance areas and a llama exhibit that are separate from the main Zoo north of the river. The approximately 12 acre main Zoo located north of the river is the focus of this report. The Zoo contains a large ranch style administrative building, a carousel with protective shed and a prefabricated restroom and concessions building. Aside from general observations and recommendations on the architectural styling, buildings analysis is not included in this report. The Zoo has a rough theme of the "Capitan Trail" and features several examples of local animals. The general appearance of the zoo is underwhelming, despite the general cleanliness and adequate day to day maintenance. The majority of the surfaces, structures, and finishings are worn and appear to be well past their useful life. Rather than a series of carefully planned views and user experiences, the zoo layout is a collection of enclosures with little interest or sense of discovery. A number of elements influence this experience:

a) ENTRY SEQUENCE

Arrival at the Zoo begins before a visitor sets foot on the property. An existing landscape and sign on the corner of the County Roads is the first clue that you have arrived. The Zoo is surrounded by a solid wooden fence on the north and west side, however the fence turns to chainlink by the time you get to the parking lot. There is some existing landscape along the north side of the parking lot, but little curb appeal when you arrive. Upon parking, visitors find their way to the Zoo located on the north east corner of the site. There is no landmark or other wayfinding element, however, it is fairly intuitive to head towards the series of buildings and fences that make up the Zoo. Immediate views into the Zoo are limited by fencing and buildings, but the views into the park are very pleasant and welcoming.

The sense of arrival to the Zoo could be improved with a themed gateway and new landscape.

Once the visitor arrives at the Zoo proper, there is no clear direction on where to start. A wooden directional sign gives a general sense of where exhibits are located, but there is no "grand entrance" that dictates a sense that you have arrived somewhere special. The lack of a perimeter fence separating the Zoo from the rest of the park creates too many options for entry. Options for entry are to immediately start into the Capitan trail, come into the raptor and children's area (perhaps the most distressing set of exhibits), or wander down to the concessions and carousel area. None of the available options have a "wow" factor and it is not apparent if a visitor is required to check in and pay. There is not an opportunity for a visitor to stop, orient themselves and plan their visit. There is no clear indication of where they should start their visit.

The existing entrance is confusing and does not indicate that the Zoo is a special place.

ENTRY SEQUENCE RECOMMENDATIONS

- Improve the entrance into the parking lot with a themed gateway and new landscape.
- Create an exciting entry sequence. A typical zoo entry sequence includes an approach, gateway and plaza.
- The approach should be along an obvious, wide walkway from the parking lot to an entrance gate. The walkway should be made out specialty concrete or other high quality material. This walkway is the first pedestrian experience for visitors and should set a tone of quality.
- The gateway should serve as the grand entrance. The gateway should be large enough to be seen from the parking lot and interesting enough to create a sense of arrival and anticipation. Collect an entry fee at the gate, even if it's only a few dollars. The entry fee can always be raised as the Zoo continues to improve.
- The plaza should relay a sense of arrival and interest. The plaza should be aesthetically pleasing and constructed of quality materials. The plaza also serves as a place for visitor orientation, allowing visitors to step out of the way of traffic, stop and plan their visit. This plaza also serves as the exit and usually contains services like restrooms and food. It is also the location for the

gift shop, located on the right as visitors exit. While some choice of entry to the exhibits is inevitable, the preferred starting point to enter the exhibits should have enough emphasis to be apparent to the visitors while they are in the orientation plaza.

- Install a perimeter fence between the Zoo and the rest of the park, limiting entry and exit to a single point. Controlling access will allow the Zoo to charge an entry fee, collect tangible user data and begin to control the visitor experience.

A new themed gate to the parking lot would announce that you are approaching somewhere special.

When arriving at the Phoenix Zoo, there is no doubt as to where to go.

b) VISITOR EXPERIENCE

For modern zoos, the visitor experience is a series of carefully planned events designed to encourage an emotional connection between the visitor and the animal. This is achieved through planned views, a variety of spatial experiences, and the aesthetics and quality of materials that the user will come in contact with. Controlled views allow for a sense of discovery as visitors turn corners and are greeted with a surprise. The surprise may be an interesting architectural element or a well planned exhibit scene. A well planned view can create a scene that transports visitors to an unusual place. For example, looking across the Spring River Channel towards a herd of bison in a prairie with a western town in the far distance could create a unique visual experience for the visitor. The spatial experience for visitors should vary, with wide open spaces intermixed with narrower pathways. Narrow pathways can give a sense of closeness to a smaller exhibit, while a wide open space can contribute to the sense of expansiveness of a larger exhibit. Carefully chosen construction materials can help tell the story of an exhibit and provide subtle clues to a visitor that

they have reached a special destination worthy of a stop. A split rail wooden fence next to a prairie exhibit makes a thematic connection between the required pedestrian barrier and the exhibit. A change of ground plane material from an asphalt path to a brick plaza lets a visitor know they have entered into a space that deserves special attention. Current conditions at the Spring River Zoo include the following:

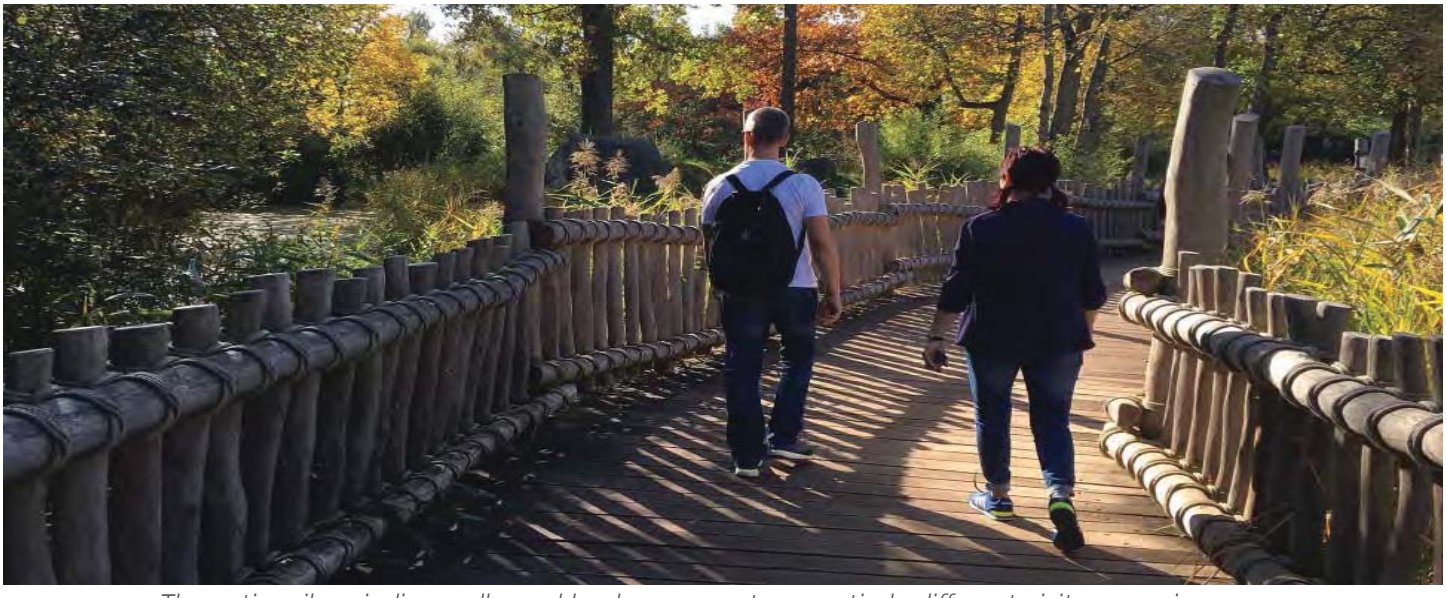
- Views are typically wide open, with several exhibits visible in the distance which does not encourage the visitor to connect with the animal in front of them, or build anticipation for what might be around a corner. There is little screening of maintenance areas, night houses, or exhibit barriers. By seeing the framework of the zoo and its operations, there is not a sense that visitors have been transported to the wild habitat of the animals, but that the animals have been brought to the Zoo and placed in pens. The area in front of the cougar and bear exhibit has some improved views caused by the winding path and pine grove.
- A variety of spatial experiences is not provided. Visitors typically travel on straight paths that are approximately 12' to 15' wide with a few bump-outs for benches. Beyond the pedestrian barriers, there are few trees or other vertical elements to define the space. The spatial experience at the cougar and bear exhibit does begin to change with a narrower winding path with some landscaping.
- The existing materials for visitor areas do not contribute to the theme of the Capitan Trail. There is far too much chainlink fencing and a great deal of it is in poor condition. Benches are provided, but there is little shade or space to make the seating particularly inviting, and the myriad of bench styles do not thematically relate to the Capitan Trail. The paths are primarily asphalt, which is common for zoos, but the surface is failing in several areas and needs to be replaced. The trail is elevated in several places, but the wooden retaining walls are beginning to

This picture illustrates a number of issues with the visitor experience. The straight trail and lack of screening allows portions of five or more exhibits to be seen. The entire scene is quite barren with no shade and little landscape. The cracks in the asphalt are a result of the retaining walls failing. There is far too much fencing visible, much of it in poor condition. A user's foot can slip between the path and bottom of the fence causing injury. All surfaces, whether natural or man made, are worn and give an impression of poor quality.

fail causing failure of the trail surface.
- There is far too little landscaping and shade along most of the trail. These elements alone can drastically improve the visitor experience and totally change the visitor perception.
- The amphitheater is poorly designed and has drainage issues due to the sunken portion.

VISITOR EXPERIENCE RECOMMENDATIONS:

- Install landscaping and/or fencing to screen unwanted views. Unwanted views include maintenance areas, off-site buildings and other elements that detract from the Capitan Trail theme. Any visible structures should relate to the Zoo theme by using vernacular architectural styles. Existing buildings that cannot be easily screened may be candidates for cladding or other surface improvements to make them feel rustic. Where space allows, create changes in the path to screen adjacent exhibits and direct visitors attention to the animals.
- By narrowing the existing pathways in select areas, the path can begin to curve and meander through the available space. Wide paths next to smaller exhibits are candidates for landscaping that will give the visitor a sense of enclosure and closeness to the exhibits. Where a large panoramic exhibit exists, create a seating plaza that encourages visitors to stop and watch the animals. Where several paths merge, or where people are likely to gather, create larger areas with seating and other amenities. All spaces, no matter the size, should be well defined and control visitors movement throughout the facility.
- When repairing or replacing barriers, furnishings, structures or other objects, all materials visible to the visitors should contribute to the rustic Capitan Trail theme. Replace chainlink pedestrian barriers with themed barriers, like split rail fencing where appropriate. Remove unnecessary barriers, or consider only placing barriers immediately in front of exhibits rather than continuous barriers between several exhibits. Choose a limited number of site furnishing styles and use them exclusively. Site furnishing styles within a themed areas should be consistent. Repair asphalt trails and their supporting structures. Where viewing plazas are created, consider using earth toned brick pavers or flagstone to highlight the area's significance. See the materials palette section of this report for examples.
- Replace missing shade cloth on the existing hoops. The hoops can be modified to resemble covered wagons, as illustrated in the Interim Improvements section of this report. Plant numerous trees throughout the Zoo pedestrian areas to create shade and to screen views.
- Remove and rebuild the amphitheater, following current standards for access and safety.



Thematic rails, winding walks and landscape create an entirely different visitor experience.

Exhibit viewing areas are differentiated from the main path by landscaping and a change in path materials. The shady path feels cool and inviting even on warm days.

A large viewing plaza allows visitors to take in this expansive savannah exhibit. Note the quality of materials, shade and comfortable seating.

c) Accessibility

By nature of the relatively flat geography and wide paths, most of the zoo is accessible to mobility impaired visitors. A major issue exists where the southern terminus of the raised walkway returns to grade:

- The ramp slope appears to be greater than 4.9% which would require landings and handrails. Currently the length of the ramp exceeds the maximum distance allowed without a landing and there is a tripping hazard/drop-off at the top of the ramp.
- The alternate path to access the raised path is by stairs, which are constructed of railroad ties and asphalt. The stairs are failing and contain numerous tripping hazards.
- Neither the stairs nor the ramp have the required handrails. Accordingly, there appears to be no direct accessible path from the raised trail to the southern portion of the Zoo.

ACCESSIBILITY RECOMMENDATIONS

- Verify the ramp slope. If the ramp slope is greater than 4.9%, reconstruct the ramp with landings and handrails per the current ADA accessibility guidelines. If the slope is less than 5%, it can remain in its current condition with the exception of the tripping hazard at the top of the ramp. Extend the existing chainlink barrier as required to block the hazard.
- Regardless of what happens with the ramp, the stairs should be reconstructed per current ADA accessibility guidelines.

Two problematic routes prevent access between the northwest and southwest portions of the Zoo. The stairs are a significant liability for the City and a hazard for visitors.

d) Signage

The existing signage at the Zoo can be classified as four types; animal information, donor identification, wayfinding and miscellaneous. All signs are in English only.

- The animal information signs are on printed paper in a plexiglass rack. The signs are inconsistent in style and in information presented, and some are missing from certain exhibits.
- Donor information is on printed computer paper in the same plexiglass rack.
- Wayfinding signage is made of heavy duty plastic or carved wood, and is placed along the County Road, the southwest corner of the parking lot and near the eagle exhibit. The signage along the road is placed parallel to the road and is not readily visible from a vehicle.

Examples of just some of the different sign types at the Spring River Zoo.

- There are other miscellaneous signs located throughout the Zoo that contribute to the visual clutter and detract from the Capitan Trail theme.

SIGNAGE RECOMMENDATIONS

- Signage is an important detail that can confer a sense organization, consistency and quality if done correctly. Animal Information and Donor Signs should be replaced with exterior grade laminate signs and mounted on a secure base. These signs should include Spanish translations.
- Wayfinding Signage should be redesigned to support the rustic Capitan Trail theme and should be of a consistent style throughout the facility. Wayfinding Signage should include; a monument sign at the corner of East College Blvd and North Atkinson Ave, a parking sign at the entrance to the parking lot, hours and admission information at the Zoo entrance, and directional signage as needed throughout the facility.

An example of simple and consistent signage on high quality, UV resistant, exterior grade plastic. Animal information is provided in both English and Spanish.

e) Structures

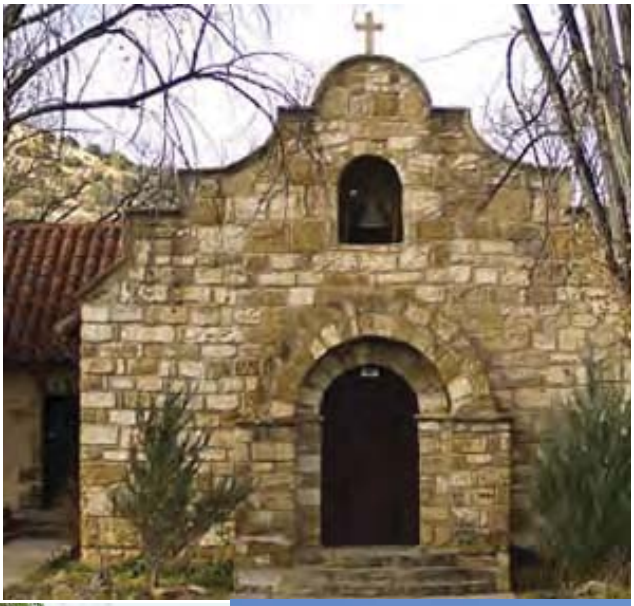
Structures located within the Zoo can be classified as visitor services, maintenance buildings, or exhibit night houses.

- The visitor services buildings include the administration building, concessions and restroom building, and the carousel shell. The administration building is a charming ranch house that has been maintained. The concessions and restroom building is a prefabricated structure with metal siding as is the carousel shell. While both buildings serve their function, neither structure is stylistically distinguishable from the maintenance buildings or storage sheds found on site. The aesthetics of the carousel shell do not honor the uniqueness of this feature.
- The larger maintenance shed is in good shape. Smaller, worn, maintenance sheds are scattered about the facility but are generally hidden from the public.
- Buildings associated with the exhibits range widely in construction materials and age. Generally, the buildings do not meet modern standards for animal care and staff safety. Layout of the buildings complicates maintenance procedures. There is a concerning predilection for modifying storage sheds into nighthouses for the animals. The storage sheds may be an improvement to what they replaced, however they will be difficult to maintain to an acceptable level and are not a permanent solution to the facilities needs.

STRUCTURES RECOMMENDATIONS

- The architectural style of visitor service buildings should reinforce the rustic theme of the facility. The ranch house fits the rustic/agricultural theme well.
- Long term, the restroom and concessions building should be rebuilt and closely related to the orientation plaza.
- The carousel shell should be replaced with a structure that both protects the carousel while honoring it's historic significance.
- Maintenance buildings should be screened from the public. If screening is not feasible, architectural cladding, paint or other methods may be used so that the building does not distract from the theme of the facility.
- The exhibit structures are inadequate and should be replaced. Due to the expense of building a permanent nighthouse to modern standards, the location of these buildings must be carefully considered. The Master Plan will recommend changes to the facility layout and circulation to be implemented in phases. Replacement of the nighthouses in their new locations should follow accordingly. In the meantime, staff should continue to maintain and repair existing nighthouses as needed and to comply with USDA requirements. Epoxy coatings may be considered for the interior of nighthouses to protect from rust and increase the life of the existing structures.

The protective cover for the carousel at the St. Louis Zoo is well integrated and appears to be part of the original structure.



The Roswell area has a great variety of vernacular architecture that can be incorporated into Zoo buildings.

f) Exhibits

The City of Roswell has received several complaints regarding the Zoo exhibits. Complaints ranged from maintenance of exhibits to fundamental issues with the size and/or design of the exhibits. The USDA cited the Zoo, although Zoo staff indicated that all maintenance issues had been addressed. The following observations were made during the site visit:

- Exhibits like the behlen cages and adjacent round pens (foxes, badgers, etc.) are outdated in appearance and technology. The Zoo staff does not have a safe and efficient means to maintain these exhibits.
- The hoofstock exhibits (bison, antelope, etc.) are sizable, but are laid out incorrectly. Deep, narrow exhibits with the nighthouse centered in rear provide little interest for the animals or visitors. These exhibits contain almost no variety in terms of topography, landscape, boulders, fallen logs, etc.
- The barrier systems for several exhibits are inadequate and unattractive.
- Reptile and insect exhibits are usually very popular. The existing reptile house is inadequate for staff, visitors and the animals.
- The eagle exhibit is outdated and appears to be structurally failing.
- The exhibits in the children's area (raptors, beavers, etc.) are too small and poorly designed.
- Although the aviary is much larger than the current raptor exhibits, it is empty and has never been used.
- The wolf exhibit has trees and logs and is one of the better exhibits, however the nighthouse is difficult to access for maintenance.
- Stucco on the interior of exhibits is an on-going maintenance issue and should be avoided.
- The bear and cougar exhibit is the most modern of all the exhibits, dating from the 1990's. However, there are fundamental flaws to the design. It is entirely made of concrete and the units are not large enough for the animals. The nighthouses are difficult to maintain and do not meet industry standards for staff safety.

The eagle exhibit is beginning to fail structurally.

Staff access to the badger exhibit is very difficult.

Behlen cage exhibits are difficult to clean.

Reptile house is problematic for staff, visitors and the animals.

Narrow, deep enclosures with the night house in the center is not preferred. Wide, shallow exhibits with a concealed nighthouse provide a better viewing experience for visitors.

Design of raptor cages is very concerning.

Use of chainlink, storage sheds and residential objects is poorly perceived by the public.

Exhibit restraint systems are inadequate and unattractive.

Bear exhibit is too small, but exhibit may be able to be enlarged by removing dividers or extending exterior walls. A structural analysis should be performed prior to any modifications.

Aviary is empty while birds are kept in small cages.

EXHIBIT RECOMMENDATIONS

Modern zoo exhibits attempt to replicate an animals natural setting. This provides interest and enrichment for the animal and education and enjoyment for the visitor. The following recommendations are intended to meet these goals.

- Behlen exhibits should be replaced. Behlen cages may be utilized for temporary, off-exhibit holding.
- Hoofstock exhibits can be rearranged to create exhibits that are wider than they are deep. Relocate nighthouses to a back corner that can be screened or designed to match the rustic theme of the exhibit. Consider combining multiple species into a single exhibit to create interest and enrichment.
- Install themed barriers on the visitor side. Improve barriers on the exhibit side and mask with landscaping or other treatments like coyote fencing that enhance the rustic theme of the facility.
- Remove the existing reptile house and replace with a modern exhibit. Considering adding fish and insects for a more comprehensive exhibit.
- Remove existing eagle exhibit and replace with a modern exhibit. Relocate eagles closer to the existing aviary and mountain exhibits.
- The exhibits in the children's area should be removed and replaced with modern exhibits. Utilize the existing aviary, modifying it as necessary to accommodate multiple species.
- All exhibits could benefit from the creation of naturalistic landforms, fallen logs, boulders, landscape, rockwork and other enhancements.
- Nighthouses should be reconstructed to modern standards as exhibits are replaced.
- Proceed with current plans to build a new mountain lion exhibit. It should be noted that while the current plan represents an improvement over the existing exhibits, it does not meet expectations for a modern zoo exhibit. By proceeding with the plans, the Zoo can remain in compliance with the USDA using available monies while gaining additional space for temporary holding and operational flexibility. The new exhibit also gives the Zoo an opportunity to modify the existing exhibit to be fully inhabited by the bears.
- Perform a structural analysis on the bear and mountain lion enclosure to determine if walls can be removed to combine and/or enlarge the exhibit. There is an open turf area immediately west of the enclosure that could be incorporated into the exhibit adding much needed landscape and plantings. Reconstruct the nighthouses to modern industry standards.

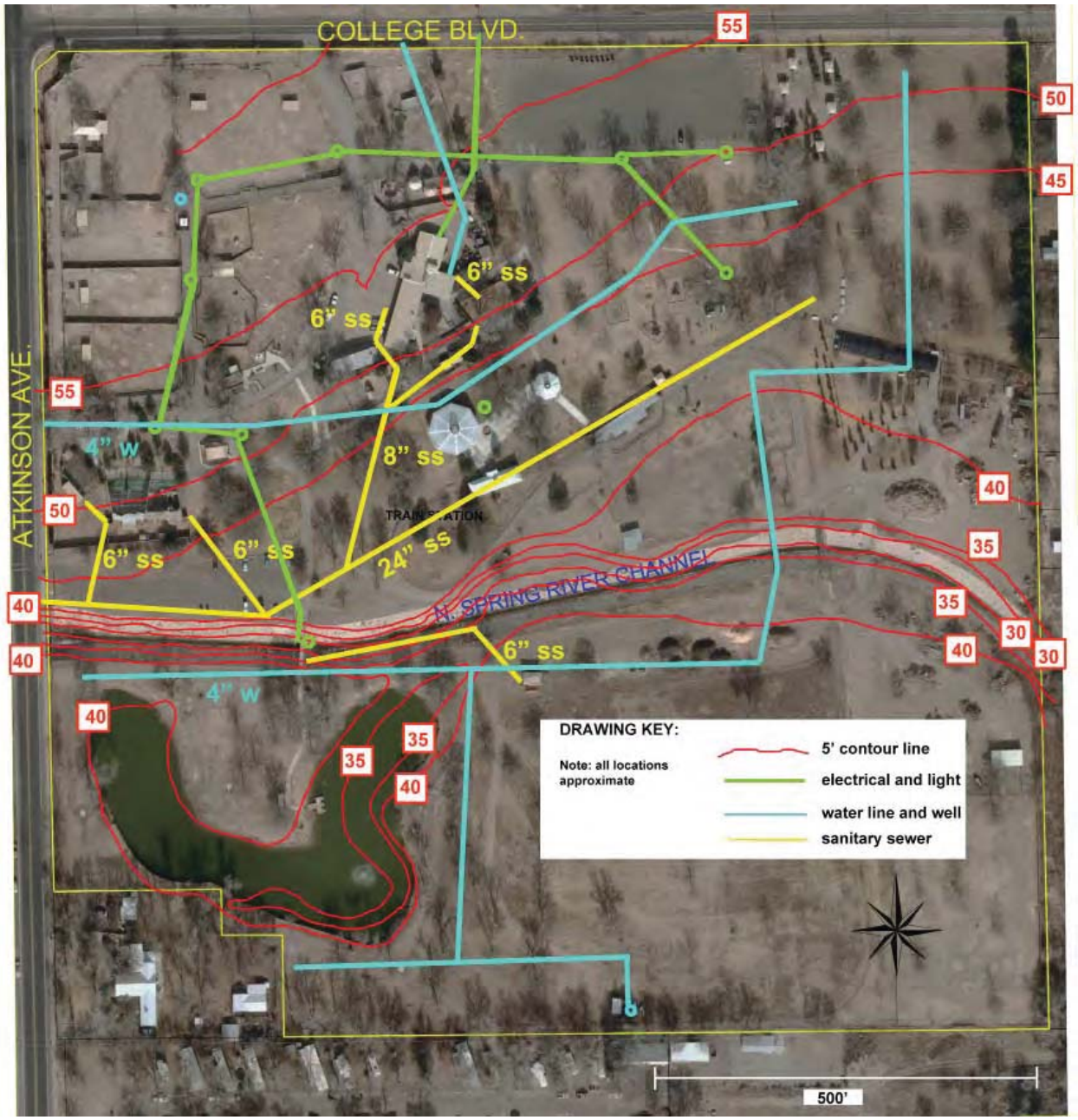
The existing bear enclosure may be able to be enlarged to give it new life. If structurally feasible, the east wall could be removed and the exhibit enlarged to encompass the open area just east of the exhibit. This would provide an adequate size for the bears and give them much needed soft landscaping.

g) Utilities

Very little information is available for utilities. There are piecemeal maps that roughly indicate the location of irrigation, storm sewer and electricity. Anecdotal reports from staff indicate that the irrigation system has low pressure and is piecemeal. Visually the site lighting appears dated with rusting poles, some of which are missing the access panel covers. No drainage issues were reported.

UTILITIES RECOMMENDATIONS

Perform an in depth utility survey, mapping the location of water, sanitary and storm sewer, irrigation and electrical lines. The survey should include pipe sizes, materials, depth and other information as is available. Accurate utility information will be critical in determining accurate costs and phasing opportunities for the Zoo reconstruction.



C. MEETINGS

MRWM and Torre Design Consortium Ltd. held a series of meetings and workshops over two days on October 25-26, 2017. The design team met with Zoo staff, City administrators, Friends of the Zoo, and the general public. Below is a summary of these meetings:

1. STAFF MEETING

MRWM and TDCL led Zoo Staff through a S.W.O.T Analysis to understand their perspective on the existing facility and hear their ideas for future improvements. The staff also took the Design Team on a tour of the facility. The staff identified the following Strengths, Weaknesses, Opportunities and Threats:

Strengths:

- Day to day maintenance
- Est. attendance equal to population
- Dedicated staff
- Community supportive
- Relationship with other zoos
- Clockwise "flow" of visitors
- New leadership
- Park & pond
- One of the top attractions
- Wolf habitat
- Animals receive good care
- Rescue model
- Good variety of animals

Weaknesses:

- Free admission
- No screening of maintenance areas
- No sense of arrival
- Signage
- Landscaping
- Educational opportunities
- Site Furnishings
- Maintenance
- Visitor Experience
- Not meeting expectations
- Facility outdated
- No sense of discovery
- Operations and safety
- Overall layout
- Access to utilities
- Shape
- Equipment access
- Chainlink fencing
- Drainage (in specific areas)
- Handrails
- Reptile building
- Advertising

Opportunities:

- Aliens!
- Education on local agriculture
- Area south of river
- Existing aviary
- More interactive exhibits
- Charge admission
- Control access/direction of flow
- Open commissary building
- Staff interaction
- More events, ex. movies in park
- Concessions & Giftshop
- Operational efficiency
- Staff training at other facilities
- Albuquerque partnership

Threats:

- Budget reductions
- Mixed council support
- Lack of direction or a plan
- Lingering perception of "old ways"
- Backlog of maintenance needs
- Backlog of investment needs
- Staff morale/expertise

The staff was asked to create a "vision statement" that encompassed their dreams for the facility. The following goals were stated:

- Become the best small facility in the region.
- Become the number one attraction in Roswell.
- Promote conservation through education and recreation.

2. PUBLIC MEETING

On October 25, 2017 at 6:00 PM A public meeting was held to discuss the Zoo. The following items were covered:

Introduction:

- City Manager Joe Neeb welcomed approximately twenty five citizens and introduced the project and consultant team.

Project Overview and Existing Conditions:

- MRWM's Rob Loftis provided an overview of the project process and discussed some of the existing conditions found at the facility.

Results of Public Survey:

- City of Roswell's Elizabeth Gilbert summarized the results of a recent public survey about the Zoo. The results showed that the Zoo remains popular with the public despite concerns about the size and condition of the animals habitats.

Trends in Zoo Development:

- TDCL's Ace Torre presented an overview of several zoo projects from across the US to illustrate what is possible for zoo facilities and the impact hey can have on education and conservation.

Public Comment:

- The attendees were asked to discuss the Zoo with the people at their tables and present their three best ideas. Below is a list of the suggestions:
- Table One = 1) Enhance Mountain Lion and Bear Exhibit 2) landscape to create a more natural setting for visitors and animals 3) renovate existing aviary
- Table Two = 1) Enhance education opportunities 2) create revenue generation 3) create an extensive collection of animals from New Mexico
- Table Three = 1) Improve animal enclosures 2) New Mexico theme 3) butterfly garden
- Table Four = 1) More landscape and shade 2) enlarge small exhibits 3) make animals healthy and happy

3. STAKEHOLDER MEETING

On October 26, 2017 at 8:00 AM a stakeholder meeting was held to discuss options for the Zoo master plan.

Attendees:

- Joe Neeb, City Manager
- Elizabeth Gilbert, Admin. Services
- Bill Morris, Planning Manager
- Juanita Jennings, Public Affairs
- Jim Buress, Parks & Rec. Director
- Marguerite Woods, Zoo Director
- Ivan Hall,Friends of the Zoo
- Sue Weston, Friends of the Zoo
- Rob Loftis, MRWM
- Ace Torre, TDCL

Ace Torre led a lively discussion about zoo design standards and how they may be applied to the Spring River Park & Zoo:

- The north parking lot is likely adequate in the short term and could be expanded to the east in the future. The parking lot south of the bear enclosure could be closed and re-purposed for additional maintenance activities.
- There is a strong need to create an entrance to the Zoo. The entrance sequence should allow for strong sense of arrival, a gateway, and an orientation plaza.
- The orientation plaza may contain food vendors, visitor services, and some type of play element like the carousel or a splashpad.
- A giftshop can be included in the orientation plaza. The most successful gift shop location is typically on the right side when exiting.
- Zoos usually have a primary circulation path (20-24' wide) with a preferred counter clockwise movement. Off of the primary path will be individual exhibits along a secondary path (8'-14' wide).
- Individual exhibits (ex. "North America") should tell a story and include a portal, body of experience, and closure.
- While both the primary and secondary paths will have a preferred beginning and end, all paths should work if visited in the opposite direction.
- Service paths should be hidden along the perimeter and if possible should avoid crossing the visitors path. Service paths should serve the giftshop, rental buildings and other facilities.
- The zoo should be secured as a separate entity from the park and admission should be charged. A double fence should be provided at the perimeter.
- The first exhibit should have a "wow" factor and immediately impress visitors.
- Modern zoos can cost up to 4 million dollars an acre. Large, pastoral exhibits may be significantly less, while exhibits with significant architecture and/or water features may be more.
- It is common for a zoo to have a grant director to obtain funding and support for zoo improvements.
- Zoo Master Plans are typically implemented over many years and are paid for by private donations and civic bond elections.
- AZA accreditation can be cumbersome, but opens the opportunity for animal sharing and staff training as well as other benefits.
- It is important to staff that the plan include interim improvements that can be made in the near future with existing resources. Interim improvements may include combining of existing exhibits, creating berms and landscape in exhibits, improving fence and visitor barriers, planting trees and moving animals to under utilized larger exhibits.

- There is an immediate need to create an new cougar habitat as insisted on by the USDA. Existing plans are to create a 14,000 square foot exhibit next to the maintenance yard with a nigh house that can be seen by visitors. The design team noted that while the design is an improvement over the typical exhibits found at the zoo, it is not up to modern standards or design philosophy. Staff is very hesitant to change the current design due to USDA pressure to improve the cougars habitat as soon as possible.
- The original "Capitan Trail" concept has merit and give visitors the experience of moving from the Roswell plains to the Capitan Mountains.
- Roswell's agricultural history of dairies, croplands, and apple orchards could be used to create an education exhibit and may attract donors from the community.
- Another exhibit would be needed to house some of the animals that do not fit the agricultural or Capitan Trail themes.
- The design team suggests utilizing the large open area south of Spring River as a bison exhibit that could be viewed from the train and larger zoo property.
- The fishing pond could become part of the zoo in the future and an opportunity to create a revenue source by renting equipment to train visitors.
- Staff would like to create a "wild west" town on the property that could host gunfights and other dramatizations during the summer months. The design team suggested that the southeast end of the property would be appropriate for this purpose.
- A new and improved reptile house is needed.
- More opportunities for staff interaction and visitor education are needed.

4. MEETINGS SUMMARY

A number of interesting ideas emerged from the various meetings. The design team left with the following impressions:

- There is strong support for the Zoo amongst the City Administration, Zoo staff, and community at large, however all parties are very aware that the facility is in dire need of improvement.
- The conservative estimate of 50,000 visitors a year is equal to the immediate regional population. This is a metric of success that zoos strive for. It also indicates that the Zoo is the second most popular attraction in the region behind the Alien Museum.
- While the City spends a large sum of money on annual maintenance and operations, very little investment has been made to significantly upgrade the facility. Anecdotally, the City spends $600,000 to $800,000 on Zoo operations annually. The last major project was the cougar and bear enclosure built sometime in the 1990's. As a result, the entire facility needs significant upgrades to meet modern expectations and standards.
- Work is needed to find balance between the local resources, expertise and expectation and the desire to not only keep the Zoo open but to also turn the Zoo into a first class facility. Although an improvement over existing conditions, the current plans for improvement to the facility (bobcat night house, cougar enclosure) do not meet modern standards or expectations. It should be acknowledged that these proposed upgrades are time sensitive and the Zoo may need to proceed with them to remain in compliance with the USDA.

D. PROPOSED MASTER PLAN

1. PROGRAM OVERVIEW

The following program goals and elements were derived from the site visit, public meeting, and meetings with City staff and project stakeholders. They are listed in no particular order:

- The regional identity of Roswell and the surrounding area should feature heavily at the new Spring River Zoo.
- The original "Capitan Trail" theme is still valid, and the framework for this theme already exists. The collection of native animals and the "plains to mountains" exhibit layout supports this theme.
- Roswell's dairy and agricultural history should be celebrated. A barn themed educational building would provide the Zoo with a proper learning facility and would likely be supported by the local agricultural community.
- There are several existing animals that do not fit neatly into the "native" or "agricultural" categories. An "exotics" area or series of exhibits will need to be included for these animals.
- An improved entry sequence is needed along with controlled access into the Zoo facility.
- A rental facility for parties, dinners and other events would bring interest and additional revenue potential to the facility.
- The majority of the Zoo exhibits should be consolidated on the north side of the river. This will require the lamas to be relocated. The south side of the river will be reserved for bison and primarily viewed from a distance or by train.
- A "wild west" themed town can be constructed in the far southeast corner of the property. This will serve as a visual backdrop for the bison prairie and point of visual interest for train riders. The town could be visited by Zoo patrons on special occasions. Gunfight reenactments and other dramatizations could occur in the town.
- In the future the fishing pond may be incorporated as a Zoo exhibit. It would be accessed by train and visitors would rent fishing poles and bait.
- Expansion of the north parking lot should be considered.
- More water features are desired in the exhibits.
- The existing playground would remain in the park, but a new "adventure" style playground could be incorporated into the Zoo.
- Roswell has a large aquifer, several springs, the bottomless lakes, and other natural sources of water that make it unique. A "wet" play area such as a splash pad could celebrate this resource.
- A new amphitheater is desired.
- A new reptile and insect house is needed. A related exhibit featuring native fish may also be considered.
- Existing maintenance areas need to be screened from the public.
- The train tunnel should be relocated to open the views across the river towards the Bison Prairie. The large property is a unique feature that should be taken full advantage of.
- Improved curb appeal and better signage is necessary.
- An improved bear and mountain lion exhibit is required.

The Conceptual Plan should attempt to accommodate these program elements while allowing for phased approach to development.


PRAIRIE
PRONGHORN
WHITE TAIL DEER
MULE-DEER
JAVELINA
JAGUARUNDI
BLACK-FOOTED PARROT
CRANE
PRAIRIE DOG
BADGER
COVERED WAGON EXHIBIT
RACCOON
PORCUPINE
SKUNK
RED FOX
COYOTE
JAGUAR
ELK
FOREST
WOLF
OFF-EXHIBIT HOLDING
ADMINISTRATION
SERVICE
COMMISSARY
FARM
CLASSROOMS 2ND FLOOR
TICKETING
ENTRY COMPLEX
LEMURS
ORIENTATION PLAZA
GOATS
MAINTENANCE
LSS
AOUDAD MOUNTAIN
RIVERS
REPTILES
FISH
INSECTS
OTTER
BATS
BEAVER
OPOSSUM
CHIPMUNKS
LYNX
MULTI-SPECIES AVIARY
LEMURS
COWS
LLAMAS
GOATS
SHEEP
RABBITS
WET PLAY
RANCH HOUSE & DECK
AMPHITHEATER
LONGHORN
COUGAR
BLACK BEAR
MOUNTAIN
ADVENTURE PLAY
COWS
MINIATURE HORSES
STORAGE
POND PARKING & TRAIL TO BRIDGE
EXPANDED PARKING
254
BISON PRAIRIE


EXPANDED PARKING
254
PRAIRIE
NEW ENTRY
TICKETING
ORIENTATION PLAZA
FOREST
SERVICE & ADMINISTRATION
FARM
FOOD & GIFT
REPTILES, RIVERS, & INSECTS
CAROUSEL
WET PLAY
AMPHITHEATER
PRAIRIE
MOUNTAIN
TRAIN
ADVENTURE PLAY
PRAIRIE
PRAIRIE BISON HERD
PRAIRIE
WESTERN TOWN

4. PLAN ELEMENTS

Silo image at entry / ticketing.

Thematic rails to replace chainlink.

View from ranch house to bison paddock.

Modeled grading at all exhibits.

Prairie stream at cranes and jaguarundi.

Ruins for glass viewing to jaguar.

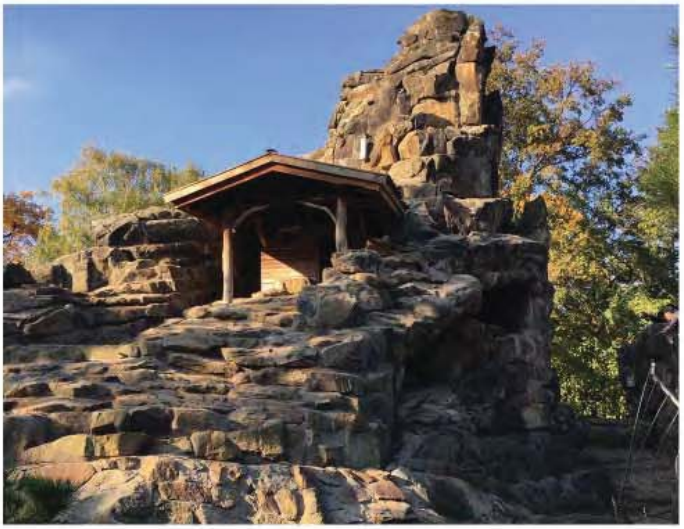
Ranch house lit at night.

Wagon circle has small exhibits and hides service gates.

Farm and contact area will be a center of activities.

Activities include classrooms, contact yards, and interpretive graphics.

Vernacular architecture will be the exterior of the rivers exhibit.



Aoudad mountain as an introductory feature of the mountain experience.

"Dairy Capital of the Southwest."

Dairy farming presents a great context for education, interpretation, and "contact area."

Historic towns of the prairies and mountains of the Capitan Trail are ghost towns today.

Thematic “ghost town” of the western town.

Western town includes architectural and cultural relics.

Western town is accessed by train, overlooking bison prairie.

The regional story about the land, animals, and people.

The existing creek will be in the last phase of improvements.

The existing pond remains across the creek and is featured in the last phase.

E. IMPLEMENTATION

1. INTERIM IMPROVEMENTS

Embarking on a new direction for the Spring River Zoo may seem overwhelming, but there are several ways that the Zoo can begin its transformation using existing resources or with a moderate increase to the existing budget. From this point forward, Zoo staff should be working towards the masterplan vision when making any repairs or upgrades to the existing facility. Improvements should be prioritized in existing locations that work with the future master plan layout, and avoided in areas where significant changes are proposed. If temporary improvements are unavoidable, they should be made with salvageable materials that can be relocated or reused.

PERIMETER FENCING: Currently visitors can enter the Zoo facility in several locations. The lack of controlled access makes it difficult to monitor visitation or survey guests. The lack of a controlled perimeter also requires security to monitor the facility during the time that the Zoo closes and the Park remains open to the public.

ADMISSIONS: With a closed perimeter, the Zoo can begin charging an admission fee. This will help begin generating revenue for the new improvements as well as providing visitation data.

SIGNAGE: As noted in the report, the existing signage does not contribute to the Capitan Trail or Agricultural theme and much of it is in poor condition. New signage could be installed at the animal exhibits and at the entrance to the parking lot. Keep in mind that while improved directional signage within the Zoo may be desired, it should be flexible in design so that it can be modified as exhibits are changed and/or relocated.

BARRIER IMPROVEMENTS: Begin replacing chainlink fencing with improved perimeter fencing, pedestrian barriers, or animal restraints. See the proposed Materials Palette (page 40) and the Barrier and Restraint Improvement suggestions (page 41) for examples.

CAPITAN TRAIL PEDESTRIAN PATH: As noted in the report, the pedestrian path in the Capitan Trail area contains material failures, ADA access issues and safety concerns. Portions of the path can be improved in its current location with only slight modifications to the alignment required to follow the master plan. Along with improving the ADA and safety issues, barrier improvements should be made as described above.

PRAIRIE EXHIBITS: The Master Plan proposes to reconfigure the prairie exhibits in their existing locations. Interim improvements in this area may include combining multiple exhibits into a larger exhibit if mixing the animal species is appropriate. Aesthetic improvements can be made with the addition of landscaping, barrier improvements and including themed materials. See the proposed Bison Exhibit improvements (Page 42) for an example.

INTERIM MOUNTAIN LION EXHIBIT: Zoo Staff has expressed an immediate need to improve the existing mountain lion exhibit. A temporary holding facility for large carnivorous animals does not currently exist, necessitating a new permanent or temporary exhibit in a new location. A new enclosure has been proposed by staff that would include a nighthouse, large boulders, landscaping and tree limbs for enrichment. See the Interim Mountain Lion Exhibit (Page 43) for more information. This enclosure would be useful in the future as a temporary holding facility for large animals when the permanent mountain lion exhibit is created.

a) Materials Palette

As the Zoo makes improvements and replaces worn out items, it is important that all construction materials support the rustic Capitan Trail and Agricultural theme. These examples show materials that support the proposed themes. It is critical that the facility begin to assume a recognizable and consistent identity.

PLAZA PAVING

MASKING MATERIALS FOR NIGHTHOUSES

SITE FURNISHINGS

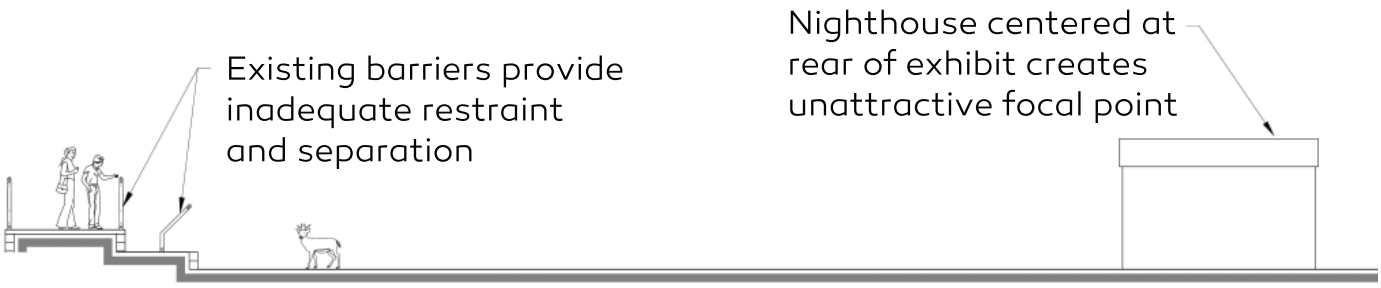
ANIMAL ENCLOSURE FENCING

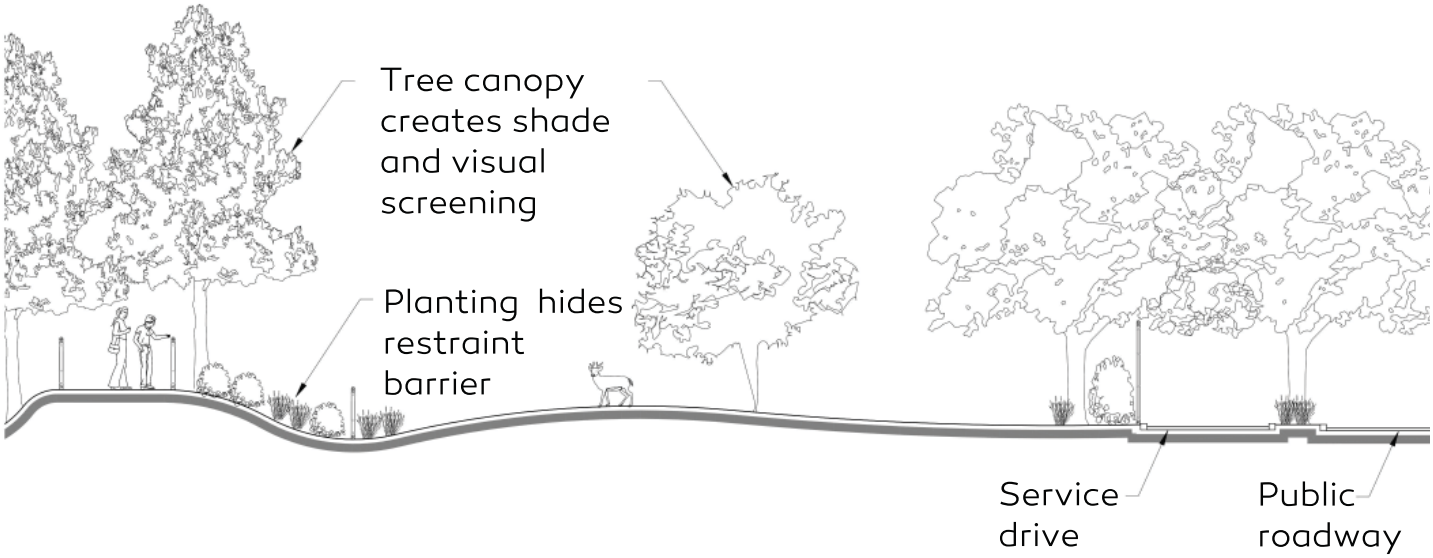
PROPERTY PERIMETER FENCING

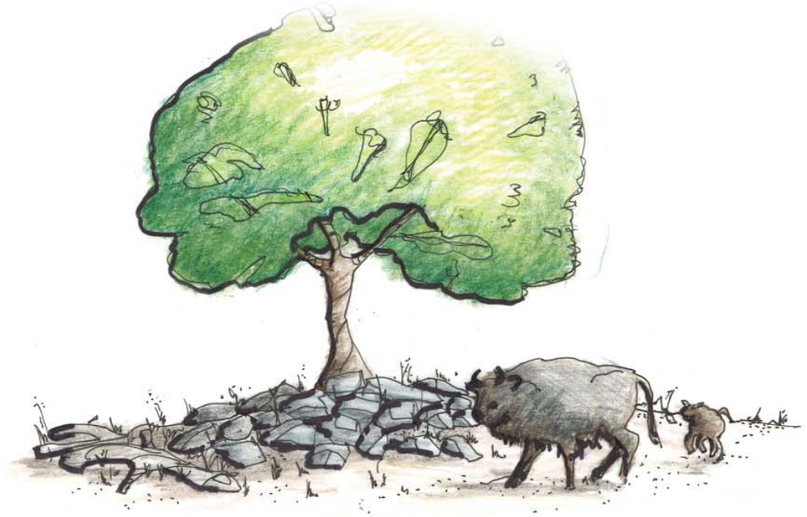
PEDESTRIAN BARRIERS

b) Barrier and Restraint Improvements

Thematic barrier rails and improved restraint systems can be installed at existing exhibits. Restraints should be screened with landscaping and located in a depressed area. Gentle berms, trees, logs and other naturalistic objects improve the exhibit for the animals and visitors alike.

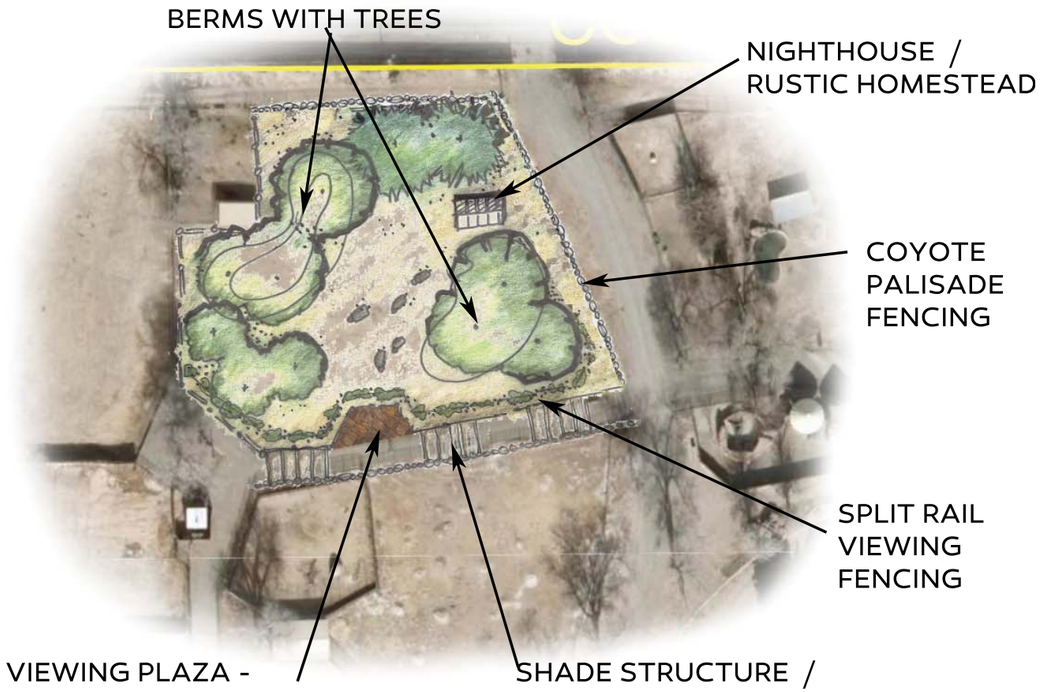




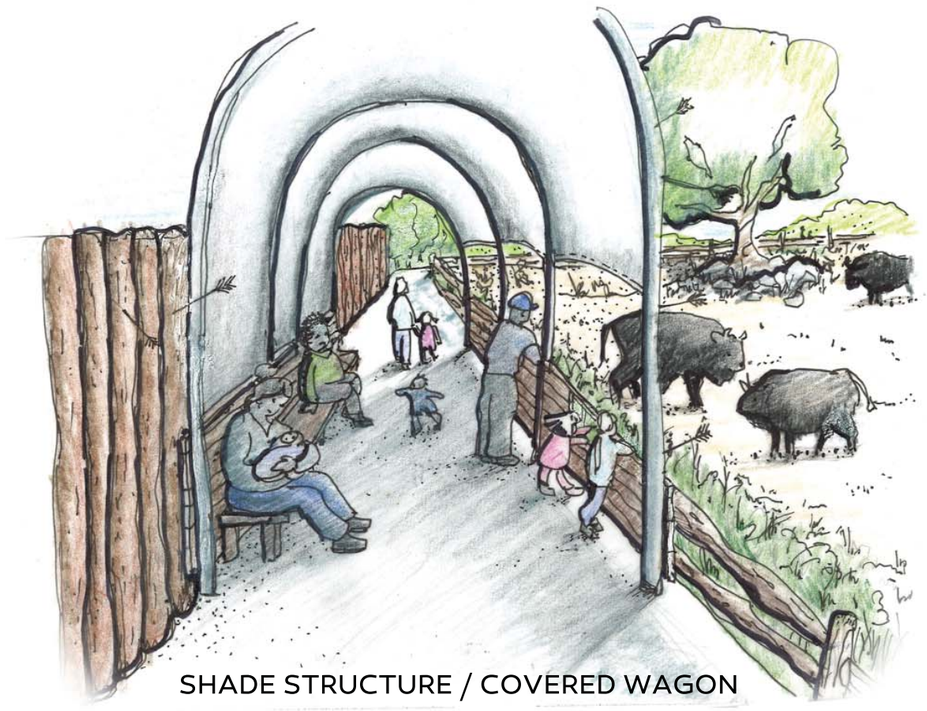


BERMS WITH TREES

ANGULAR COBBLE PREVENTS DAMAGE TO LANDSCAPE BY ANIMALS

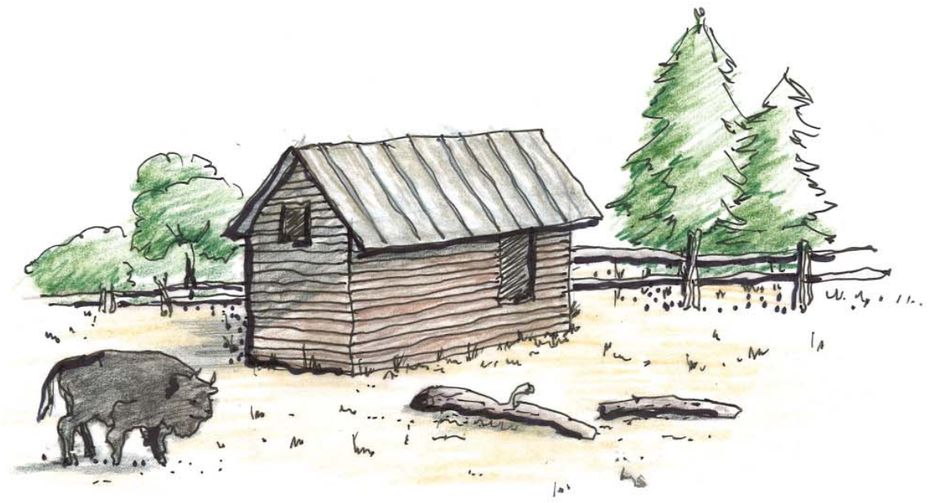


BISON ENCLOSURE



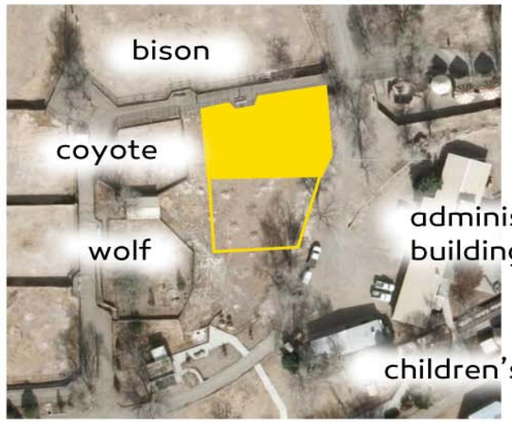
SHADE STRUCTURE / COVERED WAGON

NOTE THAT ALL MATERIALS AND DETAILS REINFORCE THE THEME



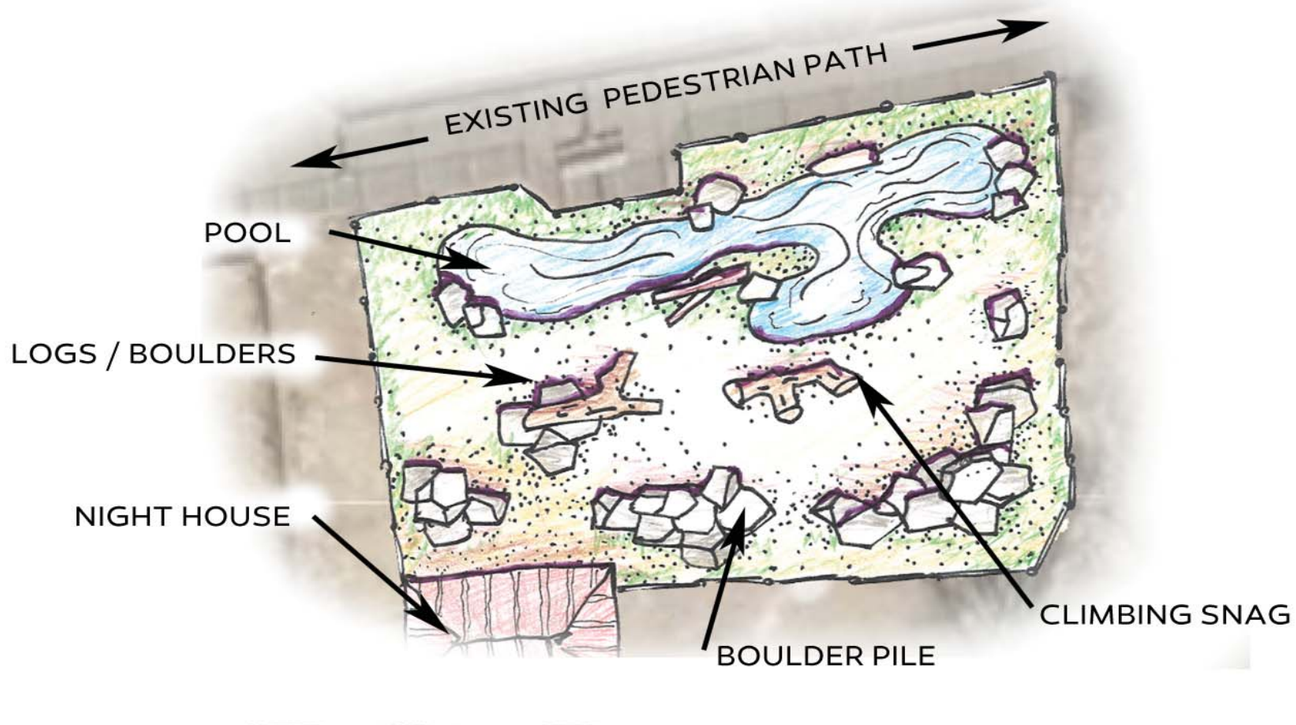
NIGHTHOUSE / RUSTIC HOMESTEAD

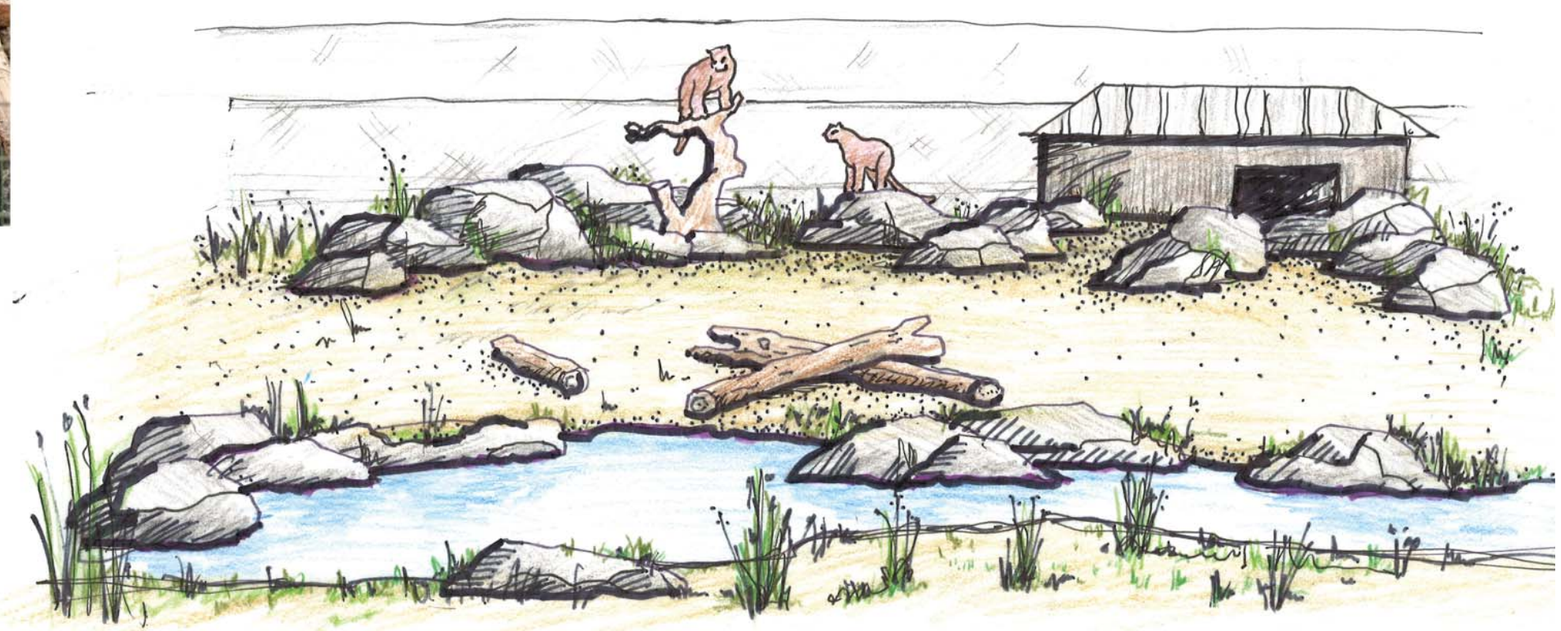
CINDER BLOCK BUILDING MASKED WITH WEATHERED MATERIALS



LOCATION MAP

PRECEDENT IMAGES





VIEW INTO ENCLOSURE

BEAR AND MOUNTAIN LION EXHIBIT (PHASE I)

The Proposed Bear and Mountain Lion Exhibit will be the centerpiece of the zoo's Mountain bioregion. Night houses for bear and mountain lion will back up to the service road for easy accessibility, and will be oriented to minimize visibility and intrusion on the exhibit space. Rockwork and native vegetation will be used to naturalize the exhibit and minimize the visual impact of fencing, containment barriers, and mechanical equipment. If a donation can be locally solicited, an iconic fire tower could overlook the surrounding area, providing a functional landmark and point of interest for zoo guests.

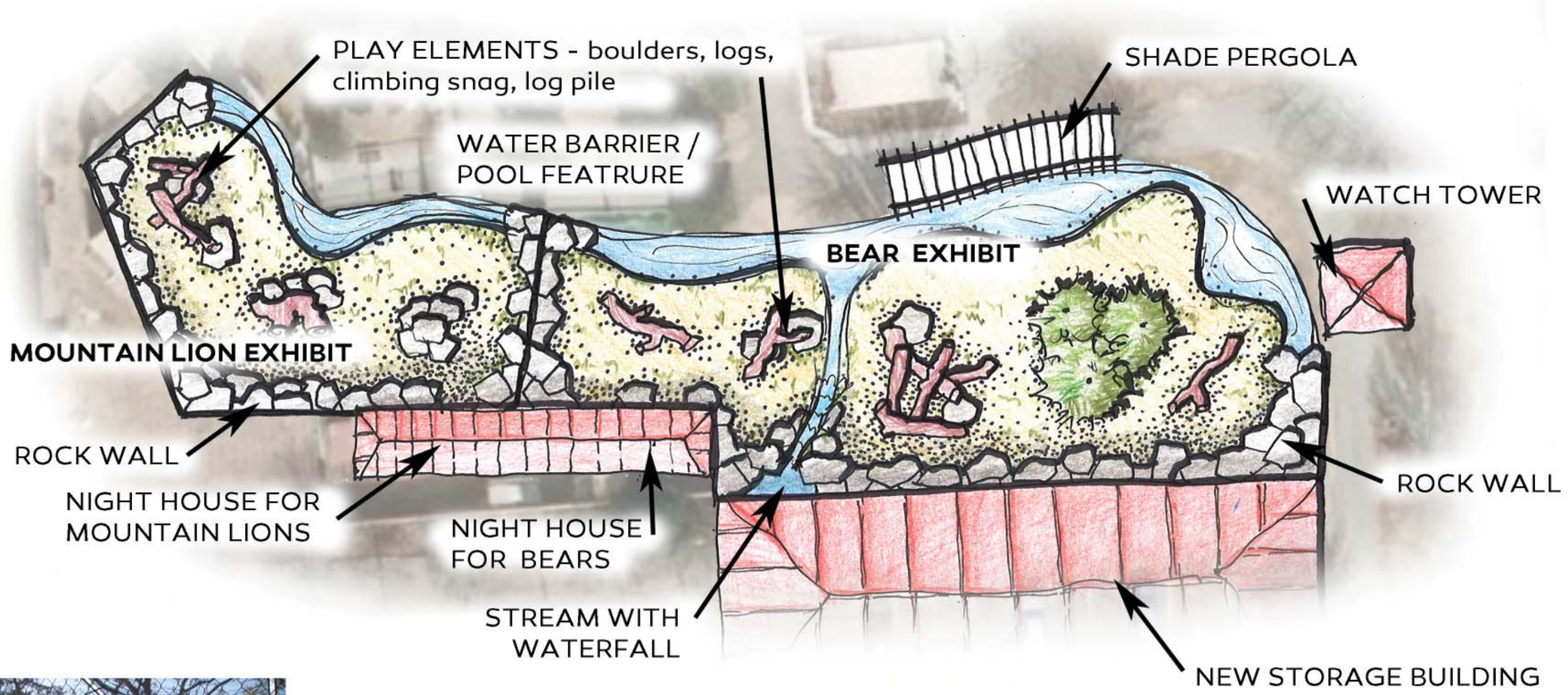
The overall exhibit area will be expanded and existing fencing and framework will be replaced, where appropriate, by a wet or dry restraint moat with concealed barricades. This approach will create more open and natural views for zoo guests, and eliminate the need for ongoing maintenance and replacement of large structural barricades.

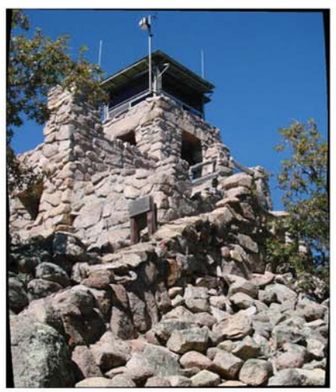
As noted in this Master Plan, the proposed Bear and Mountain Lion Exhibit requires evaluation of the existing structures to determine whether they may be rehabilitated or reused. If structural analysis determines existing walls can be incorporated, they may form a natural edge for new night houses or other exhibit components. Night house costs for new construction are estimated at $400 per square foot, so reuse of the existing elements is desirable.

Exhibit construction costs are estimated at $70 - $80 per square foot, though this can vary greatly depending on selected materials and overall scope. Final exhibit size will ultimately be determined by the actual project budget.

For planning purposes, a preliminary budget may include:

$ 700,000	Exhibition Construction
$ 70,000	Utility Improvement Allowance
$ 140,000	20% Contingency
$ 190,000	Design, Planning & Engineering Costs
$1,100,000	TOTAL





PRECEDENT IMAGES

3. MASTER PLAN PHASING AND BUDGET

The following cost estimate was prepared by Torre Design Consortium Ltd. and is based on a deliberate implementation of the Conceptual Plan. This estimate assumes a high level of site development will be required and the improvements will be bid and constructed by qualified contractors and specialty craftsmen. The budget includes the Phase One Bear and Mountain Lion exhibit but does not incorporate any of the interim improvements that the City may make in advance. MRWM has included the estimate in its original form with no value engineering other cost reductions included. There are opportunities to reduce costs in some areas, however they will require a more modest approach to the implementation of the Master Plan.

The current rescue model of the Zoo will significantly affect the implementation of the Master Plan. A new model for the Zoo will likely be required in order to obtain the animals needed to feature the native species of the surrounding region. In the current rescue model, portions of the Master Plan will likely be delayed or may not be applicable. The available budget and potential partnerships with sponsors will also affect the phasing and implementation schedule.

Development of a master plan is a critical step in ensuring that future improvements are working towards a defined goal and a comprehensive theme. Implementation of the plan can be achieved in many different ways depending on priorities and the available budget.

Spring River Park and Zoo

Master Plan Development

Conceptual Implementation Cost Estimate

November 21, 2017

TORRE DESIGN CONSORTIUM, LTD
A PROFESSIONAL CORPORATION

TASK	COST
PHASE 1: COUGAR & BEAR	$ 700,000
PHASE 1: PRAIRIE & FOREST	$ 600,000
PHASE 2: NEW ENTRY COMPLEX	$ 3,500,000
PHASE 3: FARM, PRAIRIE 2, PARKING	$ 4,400,000
PHASE 4: PLAY - WET AND DRY	$ 2,000,000
PHASE 5: RIVERS	$ 4,500,000
PHASE 6: MOUNTAINS	$ 4,000,000
PHASE 7: PRAIRIE BISON	$ 500,000
PHASE 8: WESTERN TOWN	$ 3,000,000
SUBTOTAL	$ 23,200,000
10% Utilities	$ 2,320,000
20% Contingency	$ 5,104,000
Subtotal	$ 30,624,000
A&E + Costs	$ 5,818,560
PROJECT TOTAL	**$ 36,442,560**
	2017 DOLLARS

TASK	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	CONSTRUCTION BUDGETS
PHASE 1: COUGAR & BEAR											$ 1,100,000
PHASE 1: PRAIRIE & FOREST											$ 942,480
PHASE 2: NEW ENTRY COMPLEX											$ 5,497,800
PHASE 3: FARM, PRAIRIE 2, PARKING											$ 6,911,520
PHASE 4: PLAY - DRY AND WET											$ 3,141,600
PHASE 5: RIVERS											$ 7,068,600
PHASE 6: MOUNTAINS											$ 6,283,200
PHASE 7: PRAIRIE BISON											$ 785,400
PHASE 8: WESTERN TOWN											$ 4,712,400

DESIGN
CONSTRUCTION

$ 36,443,000

END OF REPORT